

Patent Application of
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for

TITLE: CRIB WITH HIDDEN HARDWARE

CROSS-REFERENCE TO RELATED APPLICATIONS

Not applicable

**STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
DEVELOPMENT**

Not applicable.

BACKGROUND -- FIELD OF THE INVENTION

This invention is directed toward the field of crib dropside assemblies, more particularly to crib dropside assemblies with hidden hardware in corner posts.

BACKGROUND -- DISCUSSION OF PRIOR ART

Crib dropside assemblies are employed for allowing at least one of the sides of a crib to be raised or lowered. Access to an infant is thereby facilitated. These cribs are well known in

the prior art, and typically employ sides with slats mounted between upper and lower rails. Usually, the long sides of the crib are dropsides, while the short sides of the cribs remain fixed.

Perhaps the most common crib hardware for a dropside assembly is one with a vertical rod mounted parallel to each crib end post, extending through grommets in the top and bottom rails of the side. A latching bar is provided along the bottom rail, which projects into and engages stationary catch elements on the surface of the end posts. The latching bar can be spring biased with the catch elements configured so that simultaneous turning of the bar and a slight lifting of the side is required to release the latch and permit lowering of the side. Alternatively, the latching bar and catch elements can be actuated via a pressure plate connected to the latch elements by rods, such that the double action of pushing the plate in one direction and then a second direction will release the catch elements, and thereby the side, without the need for the slight lifting aforesaid.

The presence of exposed hardware is problematic in crib structures. Aside from being aesthetically unpleasant, children may find exposed hardware a curiosity demanding investigation via touching or tasting. In either case, children can suffer physical injury by interacting with exposed hardware. Such injuries may include laceration, blunt trauma, or disfigurement. Exposed hardware cavities create the risk of pinching fingers of both a child and an adult who, presumably, will be operating the vertical movement of the dropside. Moreover, such cavities or gaps can catch clothing or bedding, damaging both to the annoyance of the operator of the dropside assembly.

There are many crib designs that attempt to minimize the exposure of babies to the potential attractions and dangers of crib hardware. For example, the gap between the ends of a releasable crib side and ends of the crib has been reduced by the simple expedient of providing posts at the ends of the side, with mounting hardware coupling the posts to the adjacent crib ends. U.S. Pat. No. 4,811,436, to Schwartz, illustrates a design with slotted end posts providing a guide path for spring biased locking pins in the side posts. U.S. Pat. No. 5,617,593, to Pham, shows a pin guiding track embedded in the end posts which engage a spring loaded pin mounted in the side post. U.S. Pat. Nos. 6,571,409 and 6,611,976 to Guillot disclose top and bottom side

post mounted hardware that employs a complex housing/latching mechanism to accomplish its goals. Until the present invention, there has been no uncomplicated design that completely concealed the crib hardware whether the side was in its raised or lowered position.

BRIEF SUMMARY OF THE INVENTION

In accordance with the present invention, a crib with hidden hardware to allow vertical movement of a side of the crib is presented. That is, a crib device is provided for raising and lowering the dropside of a slatted crib. The dropsides are fitted with side rails attached to the outer slats. The side rails are channeled to receive a rod. The side rails fit within corner legs which are slotted to receive the side rails. The corner legs are also channeled to receive a rod. When the side rails are fitted within the corner legs, a slide rod is positioned through the respective channels. A latching mechanism is used to lock the dropside in place via a latching rod and latch rod recesses, which are located on the corner legs. When the latching mechanism is activated the dropside moves vertically along the slide rod with reduced risk of injury to both the user of the crib and the occupant of the crib as the outer slats block unwanted access to the slotted region of the corner legs.

Objects and Advantages

Accordingly, the objects and advantages of the invention are:

- A) to provide a dropside crib assembly with hidden hardware.
- B) to provide a dropside crib assembly with hidden hardware that greatly reduces the chance of injury to a child.
- C) to provide a dropside crib assembly with hidden hardware that remains hidden whether the side is raised or lowered.
- D) to provide a dropside crib assembly with hidden hardware located in the corner legs of a child's crib.

E) to provide a dropside crib assembly with reduced risk of injury to both the user and occupant of the crib by limiting access to the hardware and slotted regions which enable vertical movement of the dropside.

Further objects and advantages are to provide a dropside crib assembly that greatly reduces cavities or gaps along the side rail that can catch clothing or bedding, damaging both to the annoyance of the operator of the dropside assembly. Still further objects and advantages will become apparent from consideration of the ensuing description and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a Front View of the front corner leg.

FIGURE 1A is a Front View of the front corner leg with plane A-A showing.

FIGURE 2 is a Side View of the front corner leg along plane A-A .

FIGURE 3 is a Front View of the Vertical Slide Rod.

FIGURE 4 is a Front View of part of the Dropside Assembly.

Reference Numerals in Drawings

| | |
|----|------------------------------------|
| 10 | Front Corner Leg |
| 12 | Front Corner Leg Slot |
| 14 | Front Corner Leg Slide Rod Channel |
| 16 | Latch Rod Catch Recess |
| 18 | Vertical Slide Rod |
| 20 | Vertical Slide Rod Threads |
| 22 | Side Rail |
| 24 | Side Rail Slide Rod Channel |
| 26 | Side Rail Slat |
| 28 | Latch Rod Support Recess |

| | |
|----|-----------------------|
| 30 | Latch Rod Channel |
| 32 | Latch Rod |
| 34 | Vertical Slat |
| 36 | Top Horizontal Bar |
| 38 | Bottom Horizontal Bar |

DETAILED DESCRIPTION OF INVENTION

As stated above, FIGURE 1 shows a Front View of the Front Corner Leg 10. Front Corner Leg Slot 12 is a slotted region which accepts Side Rail 22, which is shown in FIGURE 4. Side Rail 22 rides along Vertical Slide Rod 18. Vertical Slide Rod 18 fits within Front Corner Leg Slide Rod Channel 14, which is shown in both FIGURES 1 and 2. Vertical Slide Rod 18, shown in FIGURE 3, is secured within Front Corner Leg 10 via a wheel stud interference fit. Said wheel stud is attached to said Vertical Slide Rod 18 by Vertical Slide Rod Threads 20. When a wheel is attached to said wheel stud and the entire crib is assembled, Vertical Slide Rod 18 remains fixed within Front Corner Leg Slide Rod Channel 14. When completely assembled, Side Rail 22 rests within Front Corner Leg Slot 12, and Vertical Slide Rod 18 rests within Front Corner Leg Slide Rod Channel 14 and Side Rail Slide Rod Channel 24, which are aligned along Vertical Slide Rod 18.

Latch Rod Catch Recess 16, as shown in FIGURES 1 and 2, accepts Latch Rod 32 when the side of the crib is in its locked upright position. More specifically, Latch Rod 32, which rests within Latch Rod Channel 30, passes through Latch Rod Support Recess 28 and into Latch Rod Catch Recess 16 when the side of the crib is in its locked upright position. In the preferred embodiment, a threaded insert is placed within Latch Rod Catch Recess 16, and a bushing is placed within Latch Rod Support Recess 28.

The latch mechanisms which can be employed are common in the prior art. The latching bar can be spring biased with the catch elements configured so that simultaneous turning of the bar and a slight lifting of the side is required to release the latch and permit lowering of the

side. Preferably, the latching bar and catch elements can be actuated via a pressure plate connected to the latch elements by rods, such that the double action of pushing the plate in one direction and then a second direction will release the catch elements, and thereby the dropside, without the need for the slight lifting aforesaid.

In the locked upright position, the top of Side Rail 22 is positioned near the top of Front Corner Leg Slot 12. These features need not touch, but can be made to do so if desired. Side Rail Slat 26, which is attached to Side Rail 22, blocks access to Front Corner Leg Slot 12, preventing a child's fingers from entering Front Corner Leg Slot 12.

When the dropside is in its fully lowered position, the bottom of Side Rail 22 rests along the bottom of Front Corner Leg Slot 12. Once again, Side Rail Slat 26 blocks access to Front Corner Leg Slot 12, preventing a child's fingers from entering Front Corner Leg Slot 12.

As shown in FIGURE 4, and as is common in cribs in the prior art, Slats 34 run at intervals between the Top Horizontal Bar 36 and Bottom Horizontal Bar 38. In the preferred embodiment, the crib is symmetric such that the features discussed are repeated on both ends (right and left) of the dropside. Preferably, one long side of the crib is used as a dropside.

The dropside assembly thereby comprises the Top Horizontal Bar 36 and the Bottom Horizontal Bar 38, Slats 34 attached to said bars and spaced at intervals, a left side rail slat, a left side rail attached to said left side rail slat, a right side rail slat, a right side rail attached to said right side rail slat, and a latching means mounted to or within Bottom Horizontal Bar 38. The intervals between the slats should not exceed the maximum safe distance needed to prevent injury to a child. Said latching means preferably comprises a latching bar and catch elements that can be actuated via a pressure plate connected to the catch elements by Latch Rod 18, such that the double action of pushing the plate in one direction and then a second direction will release the Latch Rod 18 from the right and left latch rod recesses, which are the catch elements.

The movement of the dropside assembly vertical is constrained by the relative sizes of Side Rail 22 and Front Corner Leg Slot 12. As such, altering the relative sizes of the vertical faces of Side Rail 22 and Front Corner Leg Slot 12 changes the length of the dropside vertical movement.

In the preferred embodiment, spacers are placed on the ends of the Top Horizontal Bar 36 and Bottom Horizontal Bar 38 to aid smooth vertical movement of the dropside. Preferably, said spacers are made of nylon.

Alternative Embodiments

While the above description contains many specificities, these should not be construed as limitations on the scope of the invention, but rather as an exemplification of one preferred embodiment thereof. Many variations are possible and some are as follows.

Both long sides of the crib can be equipped with the dropside assembly. That is, both the front side and the rear side of the crib can be made to have a dropside assembly. Such a crib would allow more access by a user to a baby in the crib, but would be more expensive to construct and purchase.

A threaded insert may be added to the lower portion of Front Corner Leg Slide Rod Channel 14. Although this adds some complexity, it also adds more stability to fixing Vertical Slide Rod 18 within Front Corner Leg Slide Rod Channel 14.

Top Horizontal Bar 36 can be used to block Front Corner Leg Slot 12. This use of Top Horizontal Bar 36 would be in conjunction with Side Rail Slat 26. This allows greater range of motion to the dropside.

The materials used in the dropside assembly can be wood, metal, plastic, composite, or other materials commonly used in cribs. These materials allow differing strengths and weaknesses which would be used to match consumer preferences, needs, and budget restraints.

The embodiments above-discussed are to be considered illustrative and not restrictive. Thus, the scope of the invention should be determined by the appended claims and their legal equivalents.

Conclusions, Ramifications, and Scope

The utility of crib with hidden hardware is apparent. The use of hidden hardware mounted in the corner legs together with the use of the side rails mounted to the side rail slats reduces the chance of injury that a user or an occupant of a crib may sustain. That is, the user or occupant of the crib cannot readily access the hardware which allows the dropside of the crib to move vertically. In limiting this access, chance of injury is greatly reduced.

Another benefit of the invention is its sturdiness. Perhaps not readily apparent in the description presented above, in application, the crib with hidden hardware can support a large amount of weight without dropside failure.

Still another advantage of the crib with hidden hardware is its structural integrity. Such a crib does not easily come apart. Indeed, it would take considerable effort and force to cause separation of the assembled preferred embodiment of the crib with hidden hardware.

The above-discussion is to be considered illustrative and not restrictive. Thus, the scope of the invention should be determined by the appended claims and their legal equivalents.